CLAIMS

1-26. (Cancelled)

27. (Previously Presented) A method comprising:

receiving the linear output of a network CODEC, the linear output being converted from coded data transmitted by a network server modem, the linear data comprising a plurality of data points in a predetermined number of slots;

averaging the linear data value for each digital code for each of the time slots to generate estimated real non-linear constellation points;

converting the estimated real non-linear constellation points using a first converting algorithm to map the estimated real non-linear constellation points to network CODEC linear output levels;

matching each mapped CODEC linear output level to the closest of a plurality of ideal CODEC output levels for a selected type of network CODEC; and

mapping the closest ideal CODEC output levels back to real non-linear constellation points.

28. (Previously Presented) The method of claim 27, wherein the linear output of a network CODEC is received by an analog modem.

29. (Previously Presented) The method of claim 27, wherein mapping the closest ideal CODEC output levels back to real non-linear constellation points uses an inverse of the first converting algorithm.

30. (Previously Presented) The method of claim 27, wherein the linear output of the network CODEC is converted from PCM (pulse code modulation) data.

31. (Previously Presented) The method of claim 27, wherein the pre-selected frame size comprises one of 6 slots, 12 slots, or 24 slots.

32. (Previously Presented) The method of claim 27, wherein the first converting algorithm comprises:

detecting digital PAD attenuation; and

multiplying each linear data value by an estimated digital PAD attenuation to map the linear data values to CODEC output values.

33. (Previously Presented) The method of claim 32, further comprising:

detecting inter-modulation distortion, and

if inter-modulation distortion is detected, applying an additional level dependent multiplication to the linear data values.

34. (Previously Presented) The method of claim 32, wherein a failure in PAD detection is treated as a 0 dB PAD and raw averaged data is used as the real non-linear constellation points.

35. (Previously Presented) The method of claim 32, wherein if CODEC detection fails, raw averaged data is used as the constellation points.

36. (Previously Presented) The method of claim 27, wherein matching each mapped CODEC linear output level comprises:

detecting the type of the network CODEC; and

slicing the converted linear values to ideal CODEC output values.

37. (Previously Presented) The method of claim 27, wherein averaging the linear data values further comprises:

grouping similar robbed bit signaling slots, and

averaging constellation points of the similar robbed bit signaling slots to reduce the number of real non-linear constellations.

38. (Previously Presented) The method of claim 37, wherein averaging the linear data values further comprises:

averaging only non-robbed bit signaling slots.

39. (Previously Presented) The method of claim 27, wherein linear data output of the network CODEC is according to output levels of one of:

a G711 A-law CODEC;

a 711 μ-law CODEC ; or

a D4 channel bank CODEC.

40. (Previously Presented) The method of claim 27, further comprising:

limiting the largest constellation point to a level supported by hardware before saturation.

41. (Previously Presented) The method of claim 27, further comprising:

calculating and inserting ideal values that correspond to missing codes into the constellations when low level codes are not signaled due to statistical requirements and when line noise is small enough to support the low level codes.

42. (Previously Presented) The method of claim 27, further comprising:

eliminating constellation points that are non-monotonic.